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Allen-Bradley

# 1756 ControlLogix Controllers



ControlLogix Controller Catalog Numbers
1756-L61, 1756-L62, 1756-L63, 1756-L63XT, 1756-L64, 1756-L65, 1756-L71, 1756-L72, 1756-L73, 1756-L73XT, 1756-L74, 1756-L75

GuardLogix Controller Catalog Numbers
1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP, 1756-L71S, 1756-L72S, 1756-L73S, 1756-L7SP, 1756-L73SXT, 1756-L7SPXT

ControlLogix Redundancy Catalog Numbers 1756-RM, 1756-RMXT, 1756-RM2, 1756-RM2XT


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# 1756 ControlLogix Controllers

The ControlLogix® controller provides a scalable controller solution that is capable of addressing a large amount of I/O points. The ControlLogix controller can be placed into any slot of a ControlLogix I/O chassis and multiple controllers can be installed in the same chassis.

ControlLogix controllers can monitor and control I/O across the ControlLogix backplane, as well as over network links. To provide communication for a ControlLogix controller, install the appropriate communication interface module into the chassis.

## 1756-L7*x* ControlLogix Controllers Features and Specifications

| Feature | 1756-L71, 1756-L72, 1756-L73, L73XT, 1756-L74, 1756-L75 |
|---|---|
| Controller tasks | • 32 tasks<br>• 100 programs/task<br>• Event tasks: all event triggers |
| Built-in communication ports | 1 port USB(1) |
| Communication options | • EtherNet/IP<br>• ControlNet<br>• DeviceNet<br>• Data Highway Plus™<br>• Remote I/O<br>• SynchLink™<br>• Third-party process and device networks |
| USB port communication | Programming, configuration, firmware flash and on-line edits only |
| Controller connections supported, max | 500 |
| Network connections, per network module | • 100 ControlNet (1756-CN2/A)<br>• 40 ControlNet (1756-CNB/D, 1756-CNB/E)<br>• 128 ControlNet (1756-CN2/B)<br>• 256 EtherNet/IP; 128 TCP (1756-EN2*x*)<br>• 128 EtherNet/IP; 64 TCP (1756-ENBT) |
| Controller redundancy | Full support |
| Integrated motion | • SERCOS interface<br>• Analog options (encoder input, LDT input, SSI input)<br>• EtherNet/IP (CIP Motion) |
| Programming languages | • Relay ladder<br>• Structured text<br>• Function block<br>• SFC |

(1) The USB port is intended for temporary local programming purposes only and not intended for permanent connection. Do not use the USB port in hazardous locations.

**Table 1 - Technical Specifications - 1756-L7*x* ControlLogix Controllers**

| Attribute | 1756-L71 | 1756-L72 | 1756-L73 | 1756-L74 | 1756-L75 |
|---|---|---|---|---|---|
| User memory | 2 MB | 4 MB | 8 MB | 16 MB | 32 MB |
| I/O memory | 0.98 MB | | | | |
| Optional nonvolatile memory storage | 1 GB (1784-SD1 ships with every controller)<br>2 GB (1784-SD2) | | | | |
| Digital I/O, max | 128,000 | | | | |
| Analog I/O, max | 4000 | | | | |
| Total I/O, max | 128,000 | | | | |
| Energy storage module | • 1756-ESMCAP capacitor energy storage module (removable, ships installed with every controller)<br>• 1756-ESMNSE capacitor energy storage module (removable, no residual WallClockTime power backup)<br>• 1756-ESMNRM capacitor energy storage module (nonremovable, secures controller by preventing USB connection an d SD card use) | | | | |
| Current draw @ 1.2V DC | 5 mA | | | | |
| Current draw @ 5.1V DC | 800 mA | | | | |
| Power dissipation | 2.5 W | | | | |
| Thermal dissipation | 8.5 BTU/hr | | | | |
| Isolation voltage | 30V (continuous), basic insulation type, USB port-to-system<br>Type tested at 500V AC for 60 s | | | | |
| USB port(1) | USB 2.0, full speed (12 Mbps) | | | | |
| Weight, approx | 0.25 kg (0.55 lb) | | | | |
| Slot width | 1 | | | | |
| Module location | Chassis-based, any slot | | | | |
| Chassis | 1756-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17 | | | | |
| Power supply, standard | 1756-PA72, 1756-PA75, 1756-PB72, 1756-PB75 | | | | |
| Power supply, redundant | 1756-PA75R, 1756-PB75R, 1756-PSCA2 | | | | |
| Wire category(2) | 3 - on USB port | | | | |
| North American temperature code | T4A | | | | |
| IEC temperature code | T4 | | | | |
| Enclosure type rating | None (open-style) | | | | |

(1) The USB port is intended for temporary local programming purposes only and not intended for permanent connection. Do not use the USB port in hazardous locations.

(2) Use this conductor category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

**Table 2 - Environmental Specifications - 1756-L7*x* ControlLogix Controllers**

| Attribute | 1756-L71, 1756-L72, 1756-L73, 1756-L74, 1756-L75 |
|---|---|
| Temperature, operating<br>IEC 60068-2-1 (Test Ad, Operating Cold),<br>IEC 60068-2-2 (Test Bd, Operating Dry Heat),<br>IEC 60068-2-14 (Test Nb, Operating Thermal Shock) | 0…60 °C (32…140 °F) |
| Temperature, nonoperating<br>IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold),<br>IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat),<br>IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock) | -40…85 °C (-40…185 °F) |
| Temperature, surrounding air, max | 60 °C (140 °F) |
| Relative humidity<br>IEC 60068-2-30 (Test Db, Unpackaged Damp Heat) | 5…95% noncondensing |
| Vibration<br>IEC 60068-2-6 (Test Fc, Operating) | 2 g @ 10…500 Hz |
| Shock, operating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 30 g |
| Shock, nonoperating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 50 g (45 g with SD card installed) |
| Emissions<br>CISPR 11<br>IEC 61000-6-4 | Class A |
| ESD immunity<br>IEC 61000-4-2 | 6 kV contact discharges<br>8 kV air discharges |
| Radiated RF immunity<br>IEC 61000-4-3 | 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz<br>3V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz |

**Table 3 - Certifications - 1756-L7*x* ControlLogix Controllers**

| Certification(1) | 1756-L71, 1756-L72, 1756-L73, 1756-L74, 1756-L75 |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584.<br>UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810. |
| CE | European Union 2004/108/EC EMC Directive, compliant with:<br>• EN 61326-1; Meas./Control/Lab., Industrial Requirements<br>• EN 61000-6-2; Industrial Immunity<br>• EN 61000-6-4; Industrial Emissions<br>• EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) |
| C-Tick | Australian Radio communications Act, compliant with:<br>AS/NZS CISPR 11; Industrial Emissions |
| Ex | European Union 94/9/EC ATEX Directive, compliant with:<br>• EN 60079-15; Potentially Explosive Atmospheres, Protection 'n'<br>• EN 60079-0; General Requirements<br>• II 3 G Ex nA IIC T4 X |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with:<br>Article 58-2 of Radio Waves Act, Clause 3 |

(1) When marked. See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.

## 1756-L6*x* ControlLogix Controllers Features and Specifications

**Table 4 - Features - Standard ControlLogix 1756-L6*x* Controllers**

| Feature | 1756-L61, 1756-L62, 1756-L63, L63XT, 1756-L64, 1756-L65 |
|---|---|
| Controller tasks | • 32 tasks<br>• 100 programs/task<br>• Event tasks: all event triggers |
| Built-in communication ports | 1 port RS-232 serial |
| Communication options | • EtherNet/IP<br>• ControlNet<br>• DeviceNet<br>• Data Highway Plus<br>• Remote I/O<br>• SynchLink<br>• Third-party process and device networks |
| Serial port communication | • ASCII<br>• DF1 full/half-duplex<br>• DF1 radio modem<br>• DH-485<br>• Modbus via logic |
| Controller connections supported, max | 250 |
| Network connections, per network module | • 100 ControlNet (1756-CN2/A)<br>• 40 ControlNet (1756-CNB/D, 1756-CNB/E)<br>• 128 ControlNet (1756-CN2/B)<br>• 256 EtherNet/IP; 128 TCP (1756-EN2*x*)<br>• 128 EtherNet/IP; 64 TCP (1756-ENBT) |
| Controller redundancy | Full support |
| Integrated motion | • SERCOS interface<br>• Analog options (encoder input, LDT input, SSI input)<br>• EtherNet/IP (CIP Motion) |
| Programming languages | • Relay ladder<br>• Structured text<br>• Function block<br>• SFC |

**IMPORTANT** Scan time for a project loaded in a 1756-L64 or 1756-L65 controller may be slower than for the same project loaded in one of the other 1756-L6x controllers. See the Logix5000™ Controllers Instruction Execution Time and Memory Use Reference Manual, publication 1756-RM087, for instruction execution times.

**Table 5 - Technical Specifications - 1756-L6*x* ControlLogix Controllers**

| Attribute | 1756-L61 | 1756-L62 | 1756-L63 | 1756-L64 | 1756-L65 |
|---|---|---|---|---|---|
| User memory | 2 MB | 4 MB | 8 MB | 16 MB | 32 MB |
| I/O memory | 478 KB | | | | |
| Optional nonvolatile memory storage | 128 MB (1784-CF128) | | | | |
| Digital I/O, max | 128,000 | | | | |
| Analog I/O, max | 4000 | | | | |
| Total I/O, max | 128,000 | | | | |
| Replacement battery(1) | Series A: 1756-BA1, 1756-BATM, 1756-BATA<br>Series B: 1756-BA2 | | | 1756-BA2 (0.50 g Lithium) | |
| Current draw @ 5.1V DC | 1200 mA | | | | |
| Current draw @ 24V DC | 14 mA | | | | |
| Power dissipation | 3.5 W | | | | |
| Thermal dissipation | 11.9 BTU/hr | | | | |
| Isolation voltage | 30V (continuous), basic insulation type, RS-232 to system<br>Type tested at 720V DC for 60 s | | | | |
| Serial cables | 1756-CP3 or 1747-CP3, right angle connector to controller, straight to serial port, 3 m (9.84 ft) | | | | |
| Weight, approx | Series A: 0.32 kg, (0.71 lb)<br>Series B: 0.35 kg, (0.78 lb) | | | | |
| Slot width | 1 | | | | |
| Module location | Chassis-based, any slot | | | | |
| Chassis | 1756-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17 | | | | |
| Power supply, standard | 1756-PA72, 1756-PA75, 1756-PB72, 1756-PB75 | | | | |
| Power supply, redundant | 1756-PA75R, 1756-PB75R, 1756-PSCA2 | | | | |
| Wire category(2) | 2 - on RS-232 port | | | | |
| North American temperature code | T4A | | | | |
| Enclosure type rating | None (open-style) | | | | |

(1) For Australian Mining certification applications, only a series A controller and a 1756-BA1 battery can be used. For more information, contact your local distributor or sales office.

(2) Use this conductor category information for planning conductor routing as described in the system level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

**Table 6 - Environmental Specifications - 1756-L6*x* ControlLogix Controllers**

| Attribute | 1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65 |
|---|---|
| Temperature, operating<br>IEC 60068-2-1 (Test Ad, Operating Cold),<br>IEC 60068-2-2 (Test Bd, Operating Dry Heat),<br>IEC 60068-2-14 (Test Nb, Operating Thermal Shock) | 0…60 °C (32…140 °F) |
| Temperature, storage<br>IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold),<br>IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat),<br>IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock) | -40…85 °C (-40…185 °F) |
| Temperature, surrounding air, max | 60 °C (140 °F) |
| Relative humidity<br>IEC 60068-2-30 (Test Db, Unpackaged Damp Heat) | 5…95% noncondensing |
| Vibration<br>IEC 60068-2-6 (Test Fc, Operating) | 2 g @ 10…500 Hz |
| Shock, operating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 30 g |
| Shock, nonoperating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 50 g |
| Emissions<br>CISPR 11<br>IEC 61000-6-4 | Class A |
| ESD immunity<br>IEC 61000-4-2 | 6 kV contact discharges<br>8 kV air discharges |
| Radiated RF immunity<br>IEC 61000-4-3 | 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz<br>3V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz |
| EFT/B immunity<br>IEC 61000-4-4 | ±4 kV at 5 kHz on RS-232 port |
| Surge transient immunity<br>IEC 61000-4-5 | ±2 kV line-earth (CM) on RS-232 port |
| Conducted RF immunity<br>IEC 61000-4-6 | 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz |

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